

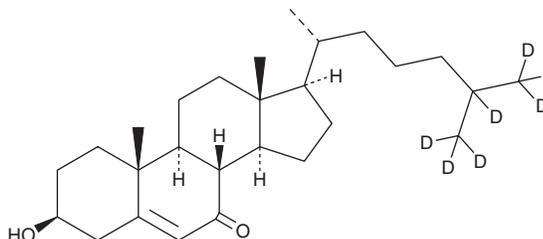
# PRODUCT INFORMATION



## 7-keto Cholesterol-d<sub>7</sub>

Item No. 25972

**CAS Registry No.:** 127684-08-6  
**Formal Name:** 3 $\beta$ -hydroxy-cholest-5-en-7-one-25,26,26,26,27,27,27-d<sub>7</sub>  
**Synonyms:**  $\Delta^5$ -Cholesterol-3 $\beta$ -ol-7-one-d<sub>7</sub>, 7-oxo Cholesterol-d<sub>7</sub>  
**MF:** C<sub>27</sub>H<sub>37</sub>D<sub>7</sub>O<sub>2</sub>  
**FW:** 407.7  
**Chemical Purity:**  $\geq$ 98% (7-keto Cholesterol)  
**Deuterium Incorporation:**  $\geq$ 99% deuterated forms (d<sub>1</sub>-d<sub>7</sub>);  $\leq$ 1% d<sub>0</sub>  
**Supplied as:** A solid  
**Storage:** -20°C  
**Stability:**  $\geq$ 4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

7-keto Cholesterol-d<sub>7</sub> is intended for use as an internal standard for the quantification of 7-keto cholesterol (Item No. 16339) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

7-keto Cholesterol-d<sub>7</sub> is supplied as a solid. A stock solution may be made by dissolving the 7-keto cholesterol-d<sub>7</sub> in the solvent of choice, which should be purged with an inert gas. 7-keto Cholesterol-d<sub>7</sub> is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 7-keto cholesterol-d<sub>7</sub> in these solvents is approximately 20, 0.1, and 2 mg/ml, respectively.

### Description

7-keto Cholesterol is a bioactive sterol and a major oxysterol component of oxidized LDL.<sup>1,2</sup> It is produced by oxidation of cholesterol *via* ethanol-mediated lipid peroxidation or photodamage as well as oxidation of 7-dehydro cholesterol (Item No. 14612) by the cytochrome P450 (CYP) isoform CYP7A1.<sup>3-5</sup> 7-keto Cholesterol inhibits CYP7A1 (IC<sub>50</sub> = ~1  $\mu$ M).<sup>4</sup> It induces activation and chemotaxis of retinal microglia as well as polarization to a pro-inflammatory state *via* NLRP3 inflammasome activation *in vitro*.<sup>6</sup> Intraocular implantation of 7-keto cholesterol-coated wafers increases ocular levels of VEGF, IL-1 $\beta$ , and GRO/KC, macrophage infiltration, and neovascularization in rat eye.<sup>7</sup> Levels of 7-keto cholesterol in lipid deposits are increased in a variety of chronic diseases, including atherosclerosis, Alzheimer's disease, and age-related macular degeneration.

### References

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2. Brown, A.J., Leong, S.I., Dean, R.T., *et al.* *J. Lipid Res.* **38**(9), 1730-1745 (1997).
3. Rodriguez, I.R. and Fliesler, S.J. *Photochem. Photobiol.* **85**(5), 1116-1125 (2009).
4. Shinkyu, R., Xu, L., Tallman, K.A., *et al.* *J. Biol. Chem.* **286**(38), 33021-33028 (2011).
5. Mitić, T., Shave, S., Semjonous, N., *et al.* *Biochem. Pharmacol.* **86**(1), 146-153 (2013).
6. Indaram, M., Ma, W., Zhao, L., *et al.* *Sci. Rep.* **5**:9144, (2015).
7. Amaral, J., Lee, J.W., Chou, J., *et al.* *PLoS One* **8**(2), e56099 (2013).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

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